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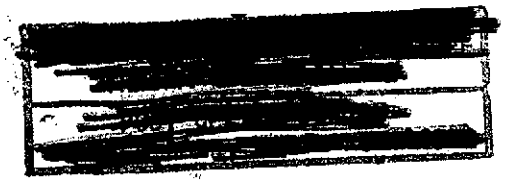

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Study of Atmospheric Effects in SKYLAB Data
Fifth Quarterly Progress Report

EREP Investigation 410 M
NASA Contract NAS9-13272

Prepared by

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NASA Technical Monitor

Mr. Larry B. York/TF6
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Johnson Space Center
Principal Investigator Management Office
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Study of Atmospheric Effects in SKYLAB Data
Fifth Quarterly Progress Report

This report covers progress during the fifth quarter (1 March - 31 May 1974) of Contract NAS9-13272, "Study of Atmospheric Effects in SKYLAB Data", EREP No. 410 M. The work is being conducted in the Infrared and Optics Division of the Environmental Research Institute of Michigan, under the general supervision of Mr. R. R. Legault. The principal investigator is Mr. F. J. Thomson

PROGRESS

During this quarter, alternative test site arrangements for White Sands data were made, Colorado test site data were reviewed and S-192 CCT products ordered, data format conversion program writing began, and we began a preliminary survey of the supporting aircraft multispectral data for the Michigan Test Site.

Because a second set of data over the Michigan Test Site was not collected during the SL-4 mission, we searched for data from an alternative test site. The criteria were reasonably clear atmosphere, presence of near simultaneous aircraft MSS underflight data, and presence of some ground information on scene materials composition or their reflectances. We selected the White Sands data set from the SL-2 mission because it satisfied all of these criteria. S-192 and aircraft MSDS tapes were ordered for that data set but have not yet been received.

Data format conversion programming was begun to convert the S-192 data in Universal Format to the ERIM format. Costs of writing debugging, and testing this program on a sample S-192 data set are being shared by various Skylab contracts at ERIM, and by other contracts.

As part of another contract (NAS9-13386-CCA2), some of the Michigan aircraft scanner data (the 10 K ft run) are being processed. We have spent some effort coordinating the processing we have done for that contract with the anticipated processing to be done on this contract to determine how much of the processing work done for that contract could be used for our investigation. There is a substantial overlap in processing tasks. We have requested that data from contract NAS9-13386 be released to this investigation and have obtained the tentative verbal approval of the Technical Monitor, M. J. Harnage, however, written approval from the contracting officer has yet to be received.

We have expended effort preparing selected portions of the 1 K ft aircraft data for analysis. Since at this altitude, the reflectance standard panels can be easily resolved in the digitized data, we can calibrate the data to reflectance. By means of secondary standards, large uniform fields easily resolved at 10 K ft and whose reflectance is known from the 1 K ft data, the reflectance of fields at 10 K ft can be determined. This step is important, because with the secondary standards, the atmospheric path radiance and transmission can also be determined empirically. At the present time, we have prepared the 1 K ft data for analysis. The next step is to extract the signatures of the reflectance panels and of the secondary standards.

PLANS

Analysis of low altitude aircraft data will continue. S-192 data will begin when written authorization is received from the contracting officer of contract NAS9-13386. We plan to attend the Skylab meeting in July in Houston.

TRAVEL

None

Respectfully submitted,

F J Thomson

Frederick J. Thomson
Research Engineer

Approved by: Paul R. Lampton for

Richard R. Legault
Director, Infrared and Optics Division

FJT:RRL:njm